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REMARKS/ARGUMENTS

Status of Claims

Claims 1, 25 and 43 have been cancelled.

Claims 2 to 24, 26 to 42 and 44 to 49 remain in the application.

Claim Amendments

Claims 2, 7, 13, 26 and 44 have been rewritten as independent claims that incorporate all of the limitations of their base claim and any intervening claim.

The dependencies of dependent claims 3, 5, 12, 30, 32, 33, 36, 48 and 49 have been amended to depend from one of the new rewritten independent claims.

35 U.S.C § 102 Claim Rejections

On page 2 of the Office Action, the Examiner rejects claims 1-6, 9-11, 25-29, 32-34, 36-37, 43-45 and 48-49 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,883,884 to Atkinson. (hereinafter referred to as "Atkinson").

Before setting forth a discussion of the prior art applied in the Office Action, it is respectfully submitted that controlling case law has frequently addressed rejections under 35 U.S.C. § 102. "For a prior art reference to anticipate in terms of 35 U.S.C. Section 102, every element of the claimed invention must be identically shown in a single reference." *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 677, 7 U.S.P.Q.2d 1315, 1317 (Fed. Cir. 1988; emphasis added). The disclosed elements must be arranged as in the claim under review. See Lindemann Machinefabrik v. American hoist & Derrick Co., 730 F.2d 1452, 1458, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). If any claim, element, or step is absent from the reference that is being relied upon, there is no anticipation. *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d

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1565, 230 U.S.P.Q. 81 (Fed. Cir. 1986; emphasis added). The following analysis of the present rejections is respectfully offered with guidance from the foregoing controlling case law decisions.

To begin, it is respectfully submitted that Atkinson fails to teach or even suggest key features of currently amended independent claims 2, 7, 13, 26 and 44, which are discussed individually below.

Specifically, currently amended independent claim 2 recites in part:

"during time slots of the first slot type:

said receiving comprises receiving communications from a transceiver of a first transceiver type on the first frequency band and said transmitting comprises transmitting communications to the transceiver of the first transceiver type on the second frequency band;

during time slots of the second slot type:

said receiving comprises receiving communications from at least one transceiver of a second transceiver type on the second frequency band and said transmitting comprises transmitting communications to at least one transceiver of the second transceiver type on the first frequency band." (emphasis added)

Effectively, the underlined portions of claim 2 above mean that the wireless repeater carries out simultaneous bi-directional communication (receive on the first frequency band and transmit on the second frequency band) with the transceiver of the first transceiver type during time slots of the first slot type.

It is respectfully submitted that Atkinson fails to teach or even suggest such a feature.

With reference to Figure 9 of Atkinson, Atkinson teaches a hierarchy of wireless repeaters (921, 922, 923) that allow wireless terminals (911, 912, 913, 914, 915 and 916) to directly or indirectly communicate with a base station 920. Communication is divided into two

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distinct periods: an outbound TDM (time division multiplexed) burst and an inbound TDMA (time division multiple access) burst. All of the network components in the system, i.e. the base station 920 and the wireless repeaters 921, 922, 923, utilize this time division scheme, i.e. they all transmit to the next hierarchy level or to a wireless terminal during the outbound TDM burst on a first frequency (F1, F2 or F3), and accordingly receive from the lower hierarchy level during the outbound TDM burst on a second frequency (F1, F2 or F3), and transmit down to the next lower hierarchy level during the inbound TDMA burst on the second frequency (F1, F2 or F3), and accordingly receive from the next higher hierarchy level or a wireless terminal during the inbound TDMA burst on the first frequency. (See Figure 9 and Column 9, lines 18-41).

For example, the level 1 repeater 921 receives communications from the base station 920 on frequency F1 and transmits communications to the level 2 repeater 922 and to the mobile terminal 913 on frequency F2 during the outbound TDM timeslots. During the inbound TDMA time slots the level 1 repeater 921 receives communications from the wireless terminal 913 and from the level 2 repeater 922 on frequency F2 and transmits communications to the base station 920 on frequency F1. Thus, communications change frequencies when they pass through levels of the hierarchy, and all communications between devices are done on the same frequency (receive in one time slot on a given frequency and transmit in another time slot on the given frequency).

It is important to note that at no time during the outbound TDM burst time slots 901, 903, 905, 907 nor during the inbound TDMA burst time slots 902, 904, 906, 908 do any of the base station 920, the first level repeater 921, the second level repeater 922 and the third level repeater 923 receive communications from a transceiver of a first transceiver type on the first frequency band and transmit communications to the transceiver of the first transceiver type on the second frequency band, as claimed in currently amended independent claim 2. For example, for communications between the base 920 and the level 1 repeater 921, outbound TDM uses the first frequency F1, and inbound TDMA also uses F1, which means that communication between the level 1 repeater 921 and the base 920 is done only on a single frequency F1, and reception of communications from the base 920 at the level 1 repeater 921 and transmission of communications to the base 920 from the level 1 repeater 921 are done during separate non-

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overlapping time slots: outbound TDM time slots and inbound TDMA time slots, respectively. In contrast, using the same terminology, claim 1 relates to simultaneous outbound TDM using F1, and inbound TDMA using F2, during time slots of the first slot type.

In view of the foregoing, it is clear that Atkinson fails to teach or suggest simultaneous bi-directional communication between a wireless relay and a transceiver of a first transceiver type by receiving communications on a first frequency band and transmitting communications on a second frequency band, and therefore cannot be found to anticipate the claimed invention, as defined in the currently amended independent claim 2, given the rulings in *Diversitech Corp. v. Century Step, Inc.* and *Closter Speedsteel AB v. Crucible, Inc.*

By virtue of at least their dependencies on amended independent claim 2, it is respectfully submitted that dependent claims 3-6, 9-12 and 32-34 are both novel and inventive over Atkinson for at least the same reasons.

On page 7 of the Office Action, the Examiner states that claims 7-8, 13-24, 31, 35 and 47 would be allowable if rewritten in independent form including all of the limitations of their base claim and any intervening claims. Applicant has rewritten claims 7 and 13 as independent claims including all of the limitations of their base claim and any intervening claims. Accordingly, Applicant believes that currently amended independent claims 7 and 13 are considered by the Examiner to be both novel and inventive over the cited reference, and dependent claims 8, 14-24, and 35 which depend therefrom are believed to be novel, and also inventive, for at least the same reasons.

With respect to claim 26, currently amended claim 26 has been rewritten as an independent claim that includes all of the limitations of cancelled independent claim 25. Currently amended independent claim 26 recites:

"A method comprising:

at a wireless relay node:

during time slots of a first slot type, receiving communications on a first frequency band from a transceiver of a first transceiver type;

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during time slots of a second slot type, transmitting communications on the first frequency band to the transceiver of the first transceiver type;

during time slots of a third slot type, receiving communications on the first frequency band from at least one transceiver of a second transceiver type;

during time slots of a fourth slot type, transmitting communications on the first frequency band to at least one transceiver of the second transceiver type;

during slots of said first slot type, said second slot type, said third slot type and said fourth slot type, communicating directly from the transceiver of the first transceiver type and at least one transceiver of the second transceiver type on a second frequency band, and communicating directly from at least one transceiver of the second transceiver type and the transceiver of the first transceiver type on a third frequency band." (emphasis added)

Effectively, the underlined portions of currently amended independent claim 26 recite that the transceiver of the first transceiver type is operable to communicate with the wireless relay node on the first frequency band (receive during time slots of the first slot type and transmit during time slots of the second slot type), while simultaneously directly communicating with at least one transceiver of the second transceiver type on second and third frequency bands, i.e. simultaneous operation on the first, second and third frequency bands.

The Examiner has only pointed to Figure 9 of Atkinson in support of the rejection of former claim 26. As discussed above with reference to the Examiner's rejection of claim 2, Figure 9 of Atkinson, and Atkinson as a whole fails to disclose simultaneous bi-directional communication between any two devices using two frequency bands, and certainly does not teach simultaneous operation on three frequency bands, as recited in currently amended claim 26.

In view of the foregoing, Applicant respectfully submits that Atkinson fails to teach or suggest all of the features of independent claim 26, and therefore cannot be found to anticipate the claimed invention, as defined in the currently amended independent claim 26, given the rulings in *Diversitech Corp. v. Century Step, Inc.* and *Closter Speedsteel AB v.*

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Crucible, Inc.

By virtue of at least their dependencies on amended independent claim 26, Applicant respectfully submits that dependent claims 27-31 and 36-37, which depend either directly or indirectly on amended independent claim 26, are novel and inventive over Atkinson for at least the same reasons.

Claim 44 has been rewritten in independent form including all of the limitations of cancelled claim 43. Independent claim 44 recites:

"A method comprising:

at a wireless relay:

configuring the relay to receive communications on a first frequency band and to transmit communications on a second frequency band;

configuring the relay to receive communications on the second frequency band and to transmit communications on the first frequency band;

defining a first umbrella frequency band and a second umbrella frequency band; and

communicating directly from a transceiver of a first transceiver type and at least one transceiver of a second transceiver type on the first umbrella frequency band, and communicating directly from at least one transceiver of the second transceiver type and the transceiver of the first transceiver type on the second umbrella frequency band."

On page 18, lines 3-29, "umbrella bands" are defined as frequency bands that are used for direct communication between UE (user equipment) and base stations. The Examiner appears to have completely ignored this definition and has merely stated with reference to figure 9 of Atkinson that "f1, f2, f3 corresponds umbrella frequency", which is clearly not the case in the system shown in Figure 9 of Atkinson. In Figure 9, the only "user equipment" shown directly

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in communication with the base station 920 are the wireless terminals 911 and 912 and they utilize frequency F1, which is also used for communication between the level 1 repeater 921 (which cannot be considered "user equipment") and the base station 920. Illustratively, the base station 920 (a first transceiver type) transmits to the wireless terminals 911 and 912 (at least one transceiver of a second transceiver type) on the first frequency F1 during the outbound TDM time slots and then receives from the wireless terminals 911 and 912 on the same first frequency F1 during the inbound TDMA time slots. Accordingly, even if F1 is construed as "the first umbrella frequency band", which Applicant submits it cannot, Atkinson fails to teach "the second umbrella frequency band" recited in independent claim 44.

In view of the foregoing, Applicant respectfully submits that Atkinson fails to teach or suggest all of the features of independent claim 44, and therefore cannot be found to anticipate the claimed invention, as defined in the currently amended independent claim 44, given the rulings in *Diversitech Corp. v. Century Step, Inc.* and *Closter Speedsteel AB v. Crucible, Inc.*

By virtue of at least their dependencies on amended independent claim 44, Applicant respectfully submits that dependent claims 45-49, which depend therefrom, are both novel and inventive over Atkinson for at least the same reasons.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 2-6, 9-11, 26-29, 32-34, 36-37, 44-45 and 48-49 under 35 U.S.C. § 102(b)

35 U.S.C § 103 Claim Rejections

On page 6 of the Office Action, the Examiner rejects claims 12, 30, and 46 under 35 U.S.C. 103(a) as being unpatentable over Atkinson in view of U.S. Patent Application Publication No. 2006/0250973 to Trott. (hereinafter referred to as "Trott"). It is respectfully submitted that the Examiner has failed to satisfy the requirements for a finding of obviousness recently articulated by the U.S. Supreme Court in its decision in *KSR Int'l v. Teleflex, Inc., No. 04-1350, slip op. at 14 (U.S., Apr. 30, 2007)*. Accordingly, as a matter of law, the rejection of the claims cannot stand and must be rescinded.

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Law

The United States Supreme Court visited the manner by which "obviousness" under 35 U.S.C. §103 is to be interpreted in the case of *KSR Int'l v. Teleflex, Inc.*, No. 04-1350, slip op. at 14 (U.S., Apr. 30, 2007). As the Court noted in KSR, once the scope of the prior art is ascertained, the content of the prior art must be properly combined. An obviousness inquiry requires review of a number of factors, including the background knowledge possessed by a person having ordinary skill in the art, to determine whether there was an apparent reason to combine the elements of the prior art in the fashion claimed by the present invention. For the Patent Office to properly combine references in support of an obviousness rejection, the Patent Office must identify a reason why a person of ordinary skill in the art would have sought to combine the respective teachings of the applied references. Id. at 15. Even if the Patent Office is able to articulate and support a suggestion to combine the references, it is impermissible to pick and choose elements from the prior art while using the application as a template. *In re Fine*, 837 F.3d 1071 (Fed. Cir. 1988). It is respectfully submitted that the 35 U.S.C. §103(a) rejection is deficient for its failure to comply with the U.S. Supreme Court's requirements recently articulated in *KSR*.

Prima Facie Obviousness Threshold

MPEP 2142 explains the procedural tool of the *prima facie* obviousness threshold, i.e. the applicant does not bear the burden of addressing substantive issues of obviousness (such as secondary considerations) until the examiner makes the *prima facie* case. A *prima facie* case requires (1) the all elements be taught in the cited reference or references when combined; (2) reasonable expectation of success; and (3) motivation to combine the cited references. 1 and 2 remain irrespective of KSR. The May 3, 2007 memo from Margaret Focarino dealing with the KSR decision states that (3) remains a requirement. More specifically, KSR requires that there be a reason why a person of ordinary skill in the art would have combined the references, and the Focarino memo requires the Examiner to provide such a reason during prosecution.

The following analysis of the present rejections under 35 U.S.C. § 103(a) is respectfully offered with guidance from the foregoing decision of the United States Supreme

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Court.

Trott has been cited by the Examiner for allegedly disclosing that all communications are OFDM communications. Trott is completely unrelated to the details of relaying communications using a wireless relay according to the present invention. Trott merely discloses details of OFDM communication between two wireless terminals. As such, Trott fails to satisfy any of the deficiencies in Atkinson identified-above, and therefore no combination of Atkinson and Trott would allow one skilled in the art to arrive at the claimed invention, since Trott and Atkinson, both alone and in combination, fail to teach all of the claimed limitations of both the independent and dependent claims.

It is therefore respectfully submitted that the first criterion required to establish a case of *prima facie* obviousness has not been satisfied. That is, the cited references do not teach all of the claimed features.

Furthermore, the Examiner's reason for combining the two references fails to satisfy the requirements for finding obviousness based on the United States Supreme Court ruling in KSR. Specifically, the only reason that the Examiner has provided for combining the references is "to provide signal protocol Orthogonal Frequency". The Examiner must realize that simply stating the contents of the claim as a reason cannot serve as a sufficient reason for combining references. For example, it is not sufficient to state that the reason for combining references is to provide an X that is a Y when rejecting a claim that reads "wherein the X is a Y".

In view of the foregoing, it is respectfully submitted that claims 12, 30, and 46 are patentable over the cited references, as the first criterion required to establish a case of *prima facie* obviousness has not been satisfied, and moreover, the Examiner has not even provided a sufficient reason for combining the references regardless of the fact that the reference fail to teach all of the claimed limitations.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claims 12, 30 and 46 under 35 U.S.C. § 103(a).

Allowed Claims

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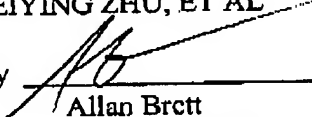
Applicant acknowledges and appreciates the Examiner's statement that claims 38-42 are allowed, and hence are considered novel and inventive.

In view of the foregoing, early favourable consideration of this application is earnestly solicited.

Respectfully submitted,

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